

IN THE CLAIMS

This listing of claims replaces all prior versions and listings of the claims in the above-referenced application.

1. (Currently Amended) A light-emitting device comprising:
a semiconductor ~~heterostructure~~ structure including at least one p-type layer and one n-type layer; and
a p contact and an n contact, the p contact electrically connected to the p-type layer, the n contact electrically connected to the n-type layer, wherein at least one of the p and n contacts is a multi-layered contact external to the semiconductor ~~heterostructure~~ structure, the multi-layered contact comprising:
a metallic reflector layer;
a continuous uniform conducting sheet adjacent to the semiconductor structure,
wherein the continuous uniform conducting sheet comprises a metal and that makes
ohmic contact to the ~~heterostructure~~ structure; and
a conductive barrier layer interposing the reflector layer and the continuous uniform conducting sheet;
wherein the multi-layer contact has a reflectivity greater than 75% for light at an operating wavelength of the light-emitting device.
2. (Canceled).
3. (Original) A device, as defined in claim 1, wherein the multi-layer contact has a specific contact resistance less than $10^{-2} \Omega\text{-cm}^2$.
4. (Canceled).
5. (Original) A device, as defined in claim 1, wherein the reflector layer has a thickness greater than 500 Å.
6. (Currently Amended) A device, as defined in claim 1, wherein the continuous

uniform conducting sheet that makes ohmic contact to the heterostructure has a thickness less than 200 Å.

7. (Original) A device, as defined in claim 1, wherein the reflector layer is selected from the group consisting of Al, Cu, Rh, Pd, and Au.

8. (Currently Amended) A device, as defined in claim 1, wherein the p and n contacts are on opposing faces of the heterostructure semiconductor structure.

9. (Currently Amended) A device, as defined in claim 8, wherein the continuous uniform conducting sheet that makes ohmic contact to the heterostructure includes comprises Ni and Ag.

10. (Currently Amended) A device, as defined in claim 8, wherein the reflector layer is comprises Ag.

11. (Currently Amended) A light-emitting semiconductor device comprising:
a semiconductor ~~heterostructure~~ structure having at least one p-type and one n-type layer; and

a p contact and an n contact, the p contact electrically connected to the p-type layer, the n contact electrically connected to the n-type layer, wherein at least one of the p and n contacts is a multi-layer contact external to the semiconductor ~~heterostructure~~ structure, the multi-layer contact comprising:

a metallic reflector layer ~~selected from the group of Al, Rh, and Ag;~~ and

a continuous uniform conducting sheet adjacent to the semiconductor structure,

wherein the continuous uniform conducting sheet comprises a metal and that makes ohmic contact to the heterostructure structure;

wherein the multi-layer contact has a reflectivity greater than 75% for light at an operating wavelength of the light-emitting device and ~~wherein the multi-layer contact has a specific contact resistance less than $10^{-2} \Omega\text{-cm}^2$.~~

PATENT LAW
GROUP LLP
2450 N. FIRST ST.
SUITE 220
SAN JOSE, CA 95134
(408) 382-0480
FAX (408) 382-0481

12-13. (Canceled).

14. (Currently Amended) A device, as defined in claim 11, the multi-layer contact further comprising a barrier layer interposing the reflector layer and the continuous uniform conducting sheet.

15. (Original) A device, as defined in claim 11, the reflector layer having a thickness greater than 500 Å.

16. (Currently Amended) A device, as defined in claim 11, wherein the continuous uniform conducting sheet that makes ohmic contact to the heterostructure having has a thickness less than 200 Å.

17. (Canceled).

18. (Currently Amended) A device, as defined in claim 11, wherein the continuous uniform conducting sheet that makes ohmic contact to the heterostructure is selected from the group that consists of Ti, Au/NiO, and Ni/Au.

19. (Currently Amended) A device, as defined in claim 1, wherein the semiconductor ~~heterostructure~~ structure includes at least one III-nitride layer.

20. (Currently Amended) A device, as defined in claim 11, wherein the semiconductor ~~heterostructure~~ structure includes at least one III-nitride layer.

21. (New) A device, as defined in claim 1, wherein the continuous uniform conducting sheet absorbs less than 25% of light generated in the semiconductor structure and incident on the continuous uniform conducting sheet.

22. (New) A device, as defined in claim 19, wherein a voltage required to forward bias the device is less than 3.5 V.

23. (New) A device, as defined in claim 1, wherein the continuous uniform conducting sheet has thickness less than 100 Å.

24. (New) A device, as defined in claim 1, wherein:

PATENT LAW
GROUP LLP
2635 N. FIRST ST.
SUITE 222
SAN JOSE, CA 95134
(408) 382-0480
FAX (408) 382-0481

the continuous uniform conducting sheet comprises Au and has a thickness less than 35 Å;

the conductive barrier layer comprises Rh and has a thickness less than 50 Å; and
the metallic reflector layer comprises Al.

25. (New) A device, as defined in claim 8, wherein at least a portion of the n contact overlies at least a portion of the p contact.

26. (New) A device, as defined in claim 11, wherein the reflector layer is selected from the group consisting of Al, Cu, Rh, Pd, and Au.

27. (New) A device, as defined in claim 11, wherein the multi-layer contact has a specific contact resistance less than $10^{-2} \Omega\text{-cm}^2$.

28. (New) A device, as defined in claim 11, wherein the continuous uniform conducting sheet absorbs less than 25% of light generated in the semiconductor structure and incident on the continuous uniform conducting sheet.

29. (New) A device, as defined in claim 20, wherein a voltage required to forward bias the device is less than 3.5 V.

30. (New) A device, as defined in claim 11, wherein the continuous uniform conducting sheet has thickness less than 100 Å.

31. (New) A device, as defined in claim 11, wherein:

the continuous uniform conducting sheet comprises a bi-layer of NiO/Au, wherein the NiO has a thickness less than 100 Å and the Au has thickness less than 50 Å;

the metallic reflector comprises Al and has a thickness greater than 1500 Å.

32. (New) A device, as defined in claim 11, wherein:

the continuous uniform conducting sheet comprises Ti and has a thickness less than 30 Å; and

the metallic reflector comprises Al.

PATENT LAW
GROUP LLP
2633 N. FIRST ST.
SUITE 222
SAN JOSE, CA 95134
(408) 312-0481
FAX (408) 312-0481

33. (New) A device, as defined in claim 11, wherein:

the continuous uniform conducting sheet comprises Rh and has a thickness less than 150 Å; and

the metallic reflector comprises Al.

34. (New) A device, as defined in claim 11, wherein:

the continuous uniform conducting sheet comprises Cu and has a thickness less than 200 Å; and

the metallic reflector comprises Al.

35. (New) A device, as defined in claim 11, wherein:

the continuous uniform conducting sheet comprises Au and has a thickness less than 100 Å; and

the metallic reflector comprises Al.

PATENT LAW
GROUP LLP
2635 N. FIRST ST.
SUITE 220
SAN JOSE, CA 95134
(408) 382-0480
FAX (408) 382-0481